BOTULISM

A. GENERAL CONSIDERATIONS

Botulism is caused by the ingestion of the toxin produced by type A, B, E and F Clostridium botulinum, a spore forming anaerobic bacterium. The disease characteristically shows a descending muscle paralysis. It is fatal in about 10% of the cases.

B. ESSENTIALS OF DIAGNOSIS

1. Symptoms

   a. Range from mild (no medical help sought) to fulminant disease and death in 24 hours.
   b. Symptoms usually appear in 12-36 hours, but may not develop for up to 14 days.
   c. Visual symptoms are usually the first to appear. Diplopia, photophobia, blurred vision.
   d. Dysphonia, dysarthria, dysphagia and weakness of the tongue.
   e. Symmetric paralysis of the extremities. Usually descending.
   f. Weakness of the respiratory muscles may occur.
   g. Constipation, nausea, vomiting, urinary retention, decreased salivation and lacrimation.

2. Signs

   a. Alert and orientated.
   b. Ocular signs: ptosis, weakness of the extraocular muscles, some have failure of accommodation, and sluggish pupillary reaction.
   c. Widespread symmetric paralysis.
   d. DTR's may be intact, but are reduced or absent if significant paralysis is present.
   e. Normal sensory exam.
   f. No pathological reflexes.
   g. Usually progresses rapidly over several days and then stabilizes. Recovery may be weeks to months.
   h. Constipation and urinary retention due to autonomic nerve involvement may occur.

3. Differential diagnosis

   a. Guillain- Barre: normally has sensory changes.
   b. Myasthenia Gravis: normal DTR's and pupils.
   c. Tic paralysis: ascending paralysis and tic is present.
   d. Diphtheria: a history of pharyngitis and the weakness begins in the palate.

C. LABORATORY TESTS

1. None.

D. LABORATORY FINDINGS

1. None.

E. COMPLICATIONS

1. Death from respiratory arrest.

F. TREATMENT

1. Maintain adequate ventilation. An ET tube or needle cricothyroidotomy may be necessary.
2. Keep the patient NPO.
3. Cathartics and enemas if there is no ileus. This reduces the absorption of the toxin. DO NOT use Magnesium Citrate or Magnesium Sulphate.
4. IV of Lactated Ringer's at 125cc/hr.
5. NG suction as needed for an ileus.
6. Foley catheter as needed for urinary retention.

G. DISPOSITION

1. Contact a Medical Officer and MEDEVAC ASAP.

CEREBROVASCULAR ACCIDENT
(CVA/STROKE)

A. GENERAL CONSIDERATIONS

A Cerebrovascular Accident is a gross reduction or cessation in blood supply to a portion of the brain. This may occur to small sections or to an entire hemisphere. The causes are varied, but they can be broken down into the following general categories:

1. Occlusive- thrombotic, embolic
2. Hemorrhagic- ruptured vessels
3. Gross hypotension- produces a stroke syndrome

The bottom line is that there is a destruction of brain tissue. Strokes are generally sudden in their appearance. Thrombotic strokes, however, may develop in a stuttering fashion over days. The symptoms of strokes can vary from disturbance of vision to profound coma and death. The symptoms depend on the size, rate of development, and location of the stroke.

B. ESSENTIALS OF DIAGNOSIS

1. Severe headache is typical of intracranial hemorrhage.
2. Nausea and vomiting are common in brainstem strokes and intracranial hemorrhage.
3. Any of the following may be seen: hemiplegia and hemianesthesia (total or partial), respiratory defects (including Cheyne-Stokes), disturbances of speech, visual field defects, facial droping, coma, seizures.
4. Patients with uncontrolled hypertension, smokers, diabetics, etc - are all more likely to develop strokes.

C. LABORATORY TESTS

1. None.

D. LABORATORY FINDINGS

1. None.

E. COMPLICATIONS

1. Death.
2. Permanent or transient neurological deficits.

F. TREATMENT

1. Maintain airway an administer oxygen (10 liters/min.).
2. Establish IV of Normal Saline at KVO.
3. Rule out hypertensive encephalopathy, hypoglycemia and drug overdose.
4. Maintain vital signs. Good supportive care.
5. Avoid sedatives, ASA, excessive movement of the patient.
6. Absolute bed rest.
7. Monitor input/output (place Foley catheter).

G. DISPOSITION

1. MEDEVAC the patient ASAP!
2. Contact a Medical Officer for further advice.

GRAND MAL SEIZURES

A. GENERAL CONSIDERATIONS

Grand mal seizures are one of the most common forms of epilepsy. They are generalized tonic-clonic seizures. These seizures may be a result of primary epilepsy or secondary to other disease processes.

B. ESSENTIALS OF DIAGNOSIS

1. The seizures often start without warning.
2. Begins with a sudden loss of consciousness and tonic contraction of the muscles. This rigid contraction lasts for many seconds.
3. The clonic phase then begins. It is a series of rhythmic contractions of all the limbs. Duration of this phase is variable. The seizure may have only a tonic or a clonic phase.
4. There is a postictal period, where the patient first is unconscious, then slowly returns to normal. They usually experience amnesia from the seizure.
5. During these tonic-clonic seizures, urinary/fecal incontinence and tongue biting are common but not necessarily present.
6. After the seizure, the patient may experience drowsiness and headache.
7. The patient may develop cyanosis during the seizure.

C. LABORATORY TESTS

1. None.

D. LABORATORY FINDINGS

1. None.

E. COMPLICATIONS

1. Aspiration.
2. Injury due to the fall (sudden LOC).

F. TREATMENT

1. Protect the patient from injury during the active seizure, protect their airway.
2. A seizure lasting more than 10 min. should be treated as Status Epilepticus.
3. If alcohol abuse is suspected as the cause, administer 50mg Thiamine parenterally (if available).

G. DISPOSITION

1. When the patient is stable, contact a Medical Officer for MEDEVAC.

INTRACRANIAL TUMORS

A. GENERAL CONSIDERATIONS

Brain tumors may present themselves in a variety of ways. Many exist without overt symptoms (you may note slowness in comprehension, decreased ability to sustain concentration, etc), others may initially present as seizures, others initially show signs of increased intracranial pressure, and finally some initially present as focal neurologic deficits. A steady progression of symptoms and signs is suggestive.

B. ESSENTIALS OF DIAGNOSIS

1. Changes in mental functions - you must thoroughly evaluate the patient (and interview shipmates). Things to look for include: forgetfulness, emotional lability, faulty judgement, reduced mental activity, etc.. The patient may be weak, tired and drowsy.
2. Signs of increased intracranial pressure include: headaches (bitemporal or bifrontal) that wake the patient up at night or are present upon awakening, unexplained vomiting, unsteady gait, sphincter incontinence, and papilledema.
3. Seizures - generalized or focal.
4. Focal deficits - depend on the site involved. May see loss of speech, disturbance of visual fields, equilibrium deficits, etc..
5. You may see any or all the above, depending on the tumor type and location(s).

C. LABORATORY TESTS

1. None.

D. LABORATORY FINDINGS

1. None.

E. COMPLICATIONS

1. Seizures.
2. Cranial nerve deficits.
3. Paralysis.
4. Coma.
5. Death.

F. TREATMENT

1. Treat as indicated (respiratory, etc).
2. Take appropriate precautions for seizures, defects of judgement, etc.

G. DISPOSITION

1. These patients need a full evaluation, MEDEVAC within 1-2 days.
2. Contact a Medical Officer for further advice.

MENINGOCOCCAL MENINGITIS

A. GENERAL CONSIDERATIONS

Meningococcal Meningitis is an acute bacterial infection of the membranes covering the brain by Neisseria Meningitis. The reservoir of infection is man; the disease is spread by respiratory tract droplets and is associated with close living conditions. The incubation period is 2-10 days, but is commonly 3-4 days. Early symptoms are often mistaken for an upper respiratory infection.

The diagnosis of Meningitis, of all types, should be considered in any patient with a high fever and even minimal mental or neurologic changes. This is especially true with a history of head trauma or a recent infection (eg. pneumonia).

The single most important point with respect to outcome is the time from the onset of symptoms to the INITIATION of treatment.

B. ESSENTIALS OF DIAGNOSIS

1. Fever, severe headache, seizures, impairment of consciousness, and stiff neck are common to bacterial Meningitis irrespective of it's etiology.
2. Often with a petechial or ecchymotic (purpuric) rash, indicating Meningococcemia.
3. Back and abdominal muscle pain. Stiff neck.
4. Nausea and vomiting.
5. Nuchal rigidity, positive Kernig's and Brudzinski's signs.
6. Confusion and delirium.
7. Focal cranial nerve deficits and seizures are possible.
8. The onset of Meningococcal Meningitis is usually rapid.

C. LABORATORY TESTS

1. CBC.

D. LABORATORY FINDINGS

1. Leukocytosis.

E. COMPLICATIONS

1. Sepsis.
2. Death.
3. Hypovolemic shock.
4. Persistent neurologic deficits.

F. TREATMENT

1. Bed rest and isolation.
2. IV fluids of LR, limited to 1,800cc-2,000cc/day.
3. Monitor input/output (insert Foley catheter).
4. Penicillin G, 2 million units IV q 2 hours for 14 days.
5. Patients allergic to Penicillin should be given Chloramphenicol 50mg/kg in four equally divided doses every 6 hours for 10-14 days (if available). 4g IV Chloramphenicol per 24 hours in 4 divided doses.
6. Patients allergic to Penicillin should be given Ceftriaxone (Rocephin) if Chloramphenicol is not available. The dose is 2 grams IV q 12 hours for 14 days.
7. Give Acetaminophen for fever (ASA is contraindicated).
8. Prophylaxis for close contacts is accomplished by administration of Rifampin 600mg bid for two days.
9. Treat seizures with Diazepam (up to 10mg slow IV push, may repeat in 30 min.).
10. Support ventilation as needed.

G. DISPOSITION

1. Contact a Medical Officer for further advice an immediate MEDEVAC.
2. If unable to MEDEVAC, treat with the above antibiotics for at least the time stated. Discontinue antibiotics after consulting with a Medical Officer.

MIGRAINE

A. GENERAL CONSIDERATIONS

Migraine is a chronic or recurrent condition characterized by sudden attacks of headaches of vascular origin, often preceeded by a psychological or visual disturbance (aura), and followed by drowsiness. Females are more frequently affected than males. Attacks may last from a few hours to a few days.

Important considerations in terming a headache a Migraine:

1. The patient should have a history of Migraines.
2. The presenting headache should be like their prior headaches. If it is different, you may not be dealing with a Migraine. Just because a patient has a history of Migraines does NOT mean that there could not be a new cause for their pain. It is mandatory, therefore, to take a good history and do a good exam with EACH episode.

B. ESSENTIALS OF DIAGNOSIS

1. Throbbing pain in the head, neck or face, usually unilateral.
2. Blurred vision and photophobia.
3. Nausea and perhaps vomiting.
4. A family history of migraines is common.

C. LABORATORY TESTS

1. None.

D. LABORATORY FINDINGS

1. None.

E. COMPLICATIONS

1. None.

F. TREATMENT

1. Keep NPO while in pain.
2. Give Ergotamine Tartrate to interrupt headache at the onset. Take 2 tablets at the onset of aura, then 1 tablet every 30 minutes (to a maximum of 6 tablets per attack or 10 tablets per week).
3. Give Codeine or Fiorinal for acute pain. Demerol may be given for severe pain.
4. Bed rest in a quiet darkened room.
5. Give antiemetic if vomiting is severe.
6. Avoid: nicotine, caffeine, processed meats, chocolate.
7. Anti-inflammatory medications may be used for recurrent attacks.
8. Prophyllaxis with Amitriptyline 10-75mg PO HS or Propranolol 20mg Bid increased to a maximum of 80mg Bid if necessary, (Hypotension, Diabetes, and Asthma are contraindicated to Propranolol).

G. DISPOSITION

1. If the patient has not had a neurological evaluation for Migraines, refer them at the next available port.
2. Contact a Medical Officer if the symptoms are not relieved within 24 hours.

RABIES

A. GENERAL CONSIDERATIONS

Rabies is a viral disease of the CNS that affects all mammals. It is usually transmitted by infected saliva. The incubation period of 3-8 weeks permits administration of antiserum and vaccine before the disease occurs.

B. ESSENTIALS OF DIAGNOSIS

1. Prodromal period (1-4 days after incubation period):

   a. Elevated temperature.
   b. Headache, malaise, and fatigue.
   c. Anorexia, nausea, and vomiting.
   d. Sore throat and nonproductive cough.
   e. Parasthesias and fasiculations at the inoculation site.

2. Encephalitic stage:

   a. Excessive motor activity, excitation, agitation, and combativeness.
   b. Confusion and hallucinations.
   c. Bizarre thought patterns.
   d. Seizures with focal paralysis.
   e. Muscle spasms with rigidity of the back and neck.
   f. Increased DTR's.
   g. Postural hypotension.
   h. Increased lacrimation and salivation, dilated pupils.
   i. Fever (as high as 105^{0}F).

3. Brainstem dysfunction:

   a. Cranial nerve involvement with diplopia, facial palsies, optic neuritis, and difficulty with deglutition.
   b. Hydrophobia caused by spasms of the muscles of mastication.
   c. The "foaming at the mouth" picture results from increased salivation and difficulty swallowing.
   d. Death by respiratory arrest.

C. LABORATORY TESTS

1. None.

D. LABORATORY FINDINGS

1. None.

E. COMPLICATIONS

1. Death.

F. TREATMENT

1. DO NOT suture animal bites unless they occur on the face.
2. Thoroughly scrub and irrigate all animal bites.
3. Isolate the offending animal for observation (if possible).

G. DISPOSITION

1. Contact a Medical Officer for all animal bites.
2. If the patient requires antiserum and vaccine, they will need to be MEDEVACED to the nearest Medical Officer (these are not part of your AMAL).

STATUS EPILEPTICUS

A. GENERAL CONSIDERATIONS

Status Epilepticus refers to generalized seizure activity recurring before the patient has completely recovered from the postictal period of the preceding seizure. While status epilepticus can refer to persistent or recurrent seizures of any variety, those of the tonic-clonic (Grand Mal) are more of a threat to life. The following discussion deals only with the Grand Mal variety.

B. ESSENTIALS OF DIAGNOSIS

1. Recurrent grand mal seizure with little or no seizure-free periods.
2. This includes continuous seizure activity as well as recurrent seizure activity that occurs before the patient recovers from the preceding seizure.

C. LABORATORY TESTS

1. None.

D. LABORATORY FINDINGS

1. None.

E. COMPLICATIONS

1. All of those for Grand Mal seizures plus cardiac or respiratory arrest.

F. TREATMENT

1. The goals of therapy remain the same as for Grand Mal seizures (support vital functions).
2. Place an oral or nasal airway, if you can do this without causing trauma.
3. Protect the patient from traumatic injury during the seizure.
4. Prevent aspiration.
5. Carefully monitor cardiac and respiratory functions.
6. Administer Diazepam IV (IV slow push, do not exceed 10mg in a 30 min. period). This must be followed by administration of Dilantin 1000 up intravenously, administered AT NO MORE THAN 50 ugm/minute.
7. If alcohol abuse is suspected, administer 50mg Thiamine parenterally (if available).

G. DISPOSITION

1. Contact a Medical Officer and arrange for MEDEVAC as soon as the patient is stable.